

Safe Rooms
A Mitigation Success Story

Presented to:

TEXAS RISK MITIGATION LEADERSHIP FORUM

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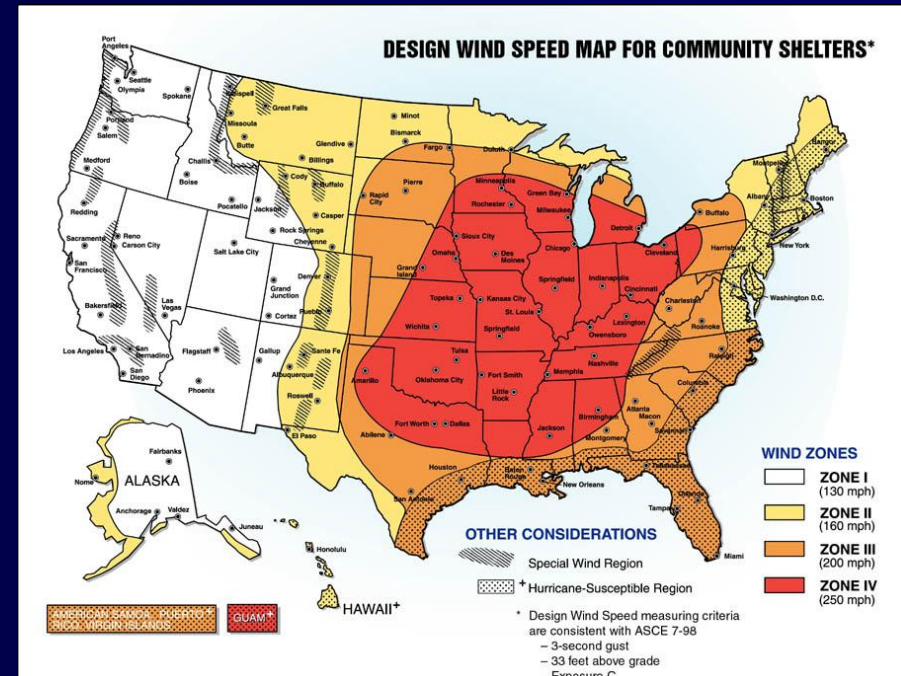
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Fear of Extreme Winds

Most people in U.S.
are **subject to**
extreme winds



Experiencing Extreme Winds

- *Severe Weather Watches and Warnings*

Lead to *Anxiety*

- Each year, about five billion person-hours are spent under severe weather watches

Oklahoma City



Spencer, SD





Safe rooms are critical to occupants of mobile homes

Mitigation Success Story

Storm Shelters
(Safe Rooms)
relieve anxiety
and
reduce risks



Beth Bartlett, her mother Norma Bartlett, two dogs and two cats weathered out the tornado in their safe room.

Wind Engineering

Program Development

- Safe Room development
 - Concept 1973; TR 83 Interim Guidelines; Jarrell, DateLine 1997; HMGP
- Standards Development
 - ANSI/ASCE 7; FEMA 320, 361; ICC 500

Wind Engineering

Program Development

- Design of window glass
 - Hurricane Alecia, Design standards
- EF Scale
 - Fujita Scale 1970; EF Scale 2007

Mitigation Success Stories Related to Safe Rooms

- FEMA Support

- Publications

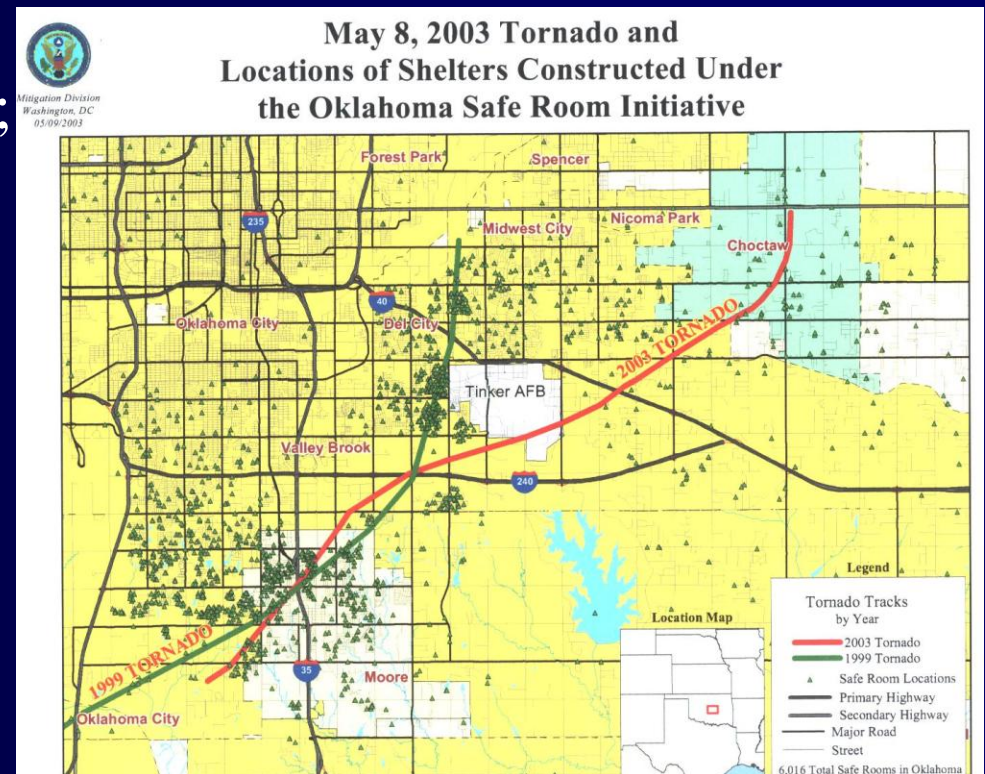
- FEMA 320, 361, HAZUS;

- MAT reports

- HMGP Grants

- Residential 1999

- Community



Mitigation Success Stories

- **FLASH**
 - Networking, Coordination, Outreach, Education
- **State of Texas**
 - Quality control—require NSSA Seal on residential shelters
- **FEMA Region VII**
 - Support of Shelter construction; quality control
- **State of Alabama**
 - Now requiring safe areas in all new schools
- **ICC**
 - Quality control through standards

Quality Issues

HMGP stimulated rapid growth in shelter industry

OKC 1999

Few professionals involved in design

Manufacturers created new products

No standard for storm shelters

Emphasized need for

professional/trade association

National Storm Shelter Association



Guide to *Quality* *Assurance*



Description of NSSA

- NSSA in a not-for-profit trade association
- Chartered in Texas as an IRS 501(c) 6
- Self-policing for the benefit of the public and a strong, credible industry

Shelter Quality Verification Process

1. MEMBER pledge to produce only those shelters that meet or exceed the Standard
2. Abide by NSSA Bylaws and Code of Ethics
3. Obtain third-party approval of design or variations from FEMA 320
4. Test shelter or FEMA 320 variations for debris impact resistance. Use tested door (www.wind.ttu.edu) .
5. Affix Seal and file Certificate of Installation with NSSA for each shelter installed

Strengths of NSSA Process

- Shifts major responsibility for compliance to shelter provider
- Offers support to building officials/inspectors to insure quality
- Identifies providers with products for long term
- Makes expertise of highly qualified professionals available to stakeholders

Benefits of NSSA Membership

Consumer

- Guidance to quality-verified products and producers
 - Checklists of important elements of shelter quality
 - Guidance on shelter selection, location
 - Industry standard that establishes quality criteria
 - Increased value with NSSA seal

Benefits of NSSA Membership

Building Official

- Higher comfort level in approving shelters and components
 - Storm shelter quality standard
 - Quality essentials checklist
 - Advice/consulting with experienced professionals

Opportunities for NSSA

- Encourage replication of Texas HMGP shelter program in other states
- Encourage **widespread utilization** of the NSSA storm shelter quality verification process
- Promote NSSA process for quality verification in other segments of the building industry

Challenges for NSSA

- Develop sustained source of funding to develop opportunities & maintain programs
- Find ways to respond to public service opportunities resulting from extensive visibility and credibility
- Find avenues for greater influence on shelter quality, public policy

Information Sources - *TTU*

- Texas Tech University

Wind Engineering Research Center

www.wind.ttu.edu

(TTU) WIND CTR

(888) 946 - 3287

Information Sources

National Storm Shelter Association

www.NSSA.cc

1 (877) 700 - 6772 (NSSA)

For Testing

(806) 742 - 6772 (NSSA)

Thank you for inviting me
here and for your support
of quality in the storm
shelter industry.